

Geometry

Name \_\_\_\_\_

Lesson 15: The Coordinate Plane (Distance  
Formula and Midpoint Formula)

Math for Standards

Date \_\_\_\_\_

*EQ: How do you find the distance between two points and find the midpoint?*

You can use \_\_\_\_\_ to find the lengths of line segments that are horizontal or vertical. You could also count the length if you have graphed the segments.

Use the \_\_\_\_\_ for line segments that are not horizontal or vertical.

The distance formula: \_\_\_\_\_ for points

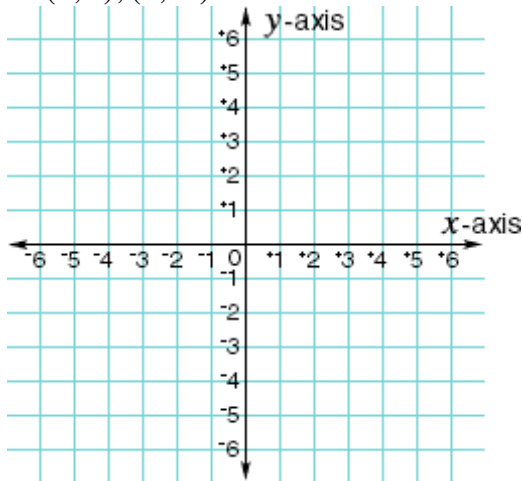
You can find the \_\_\_\_\_ of horizontal and vertical line segments by counting and dividing.

Use the \_\_\_\_\_ for line segments that are not horizontal or vertical.

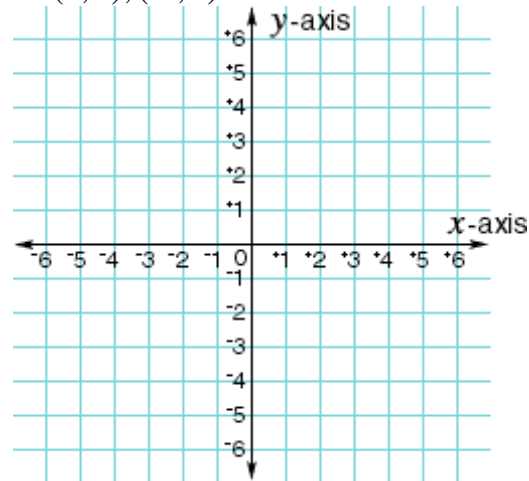
The midpoint formula: \_\_\_\_\_ for points

Example 1: Graph the following points. Then find the length and midpoint of the segments the points form.

a.  $(2, 3), (2, -5)$



b.  $(6, 4), (-4, 4)$



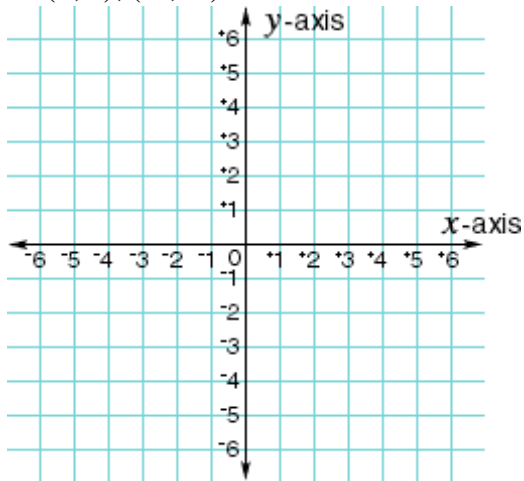
Example 2: Find the lengths and midpoints without graphing.

a.  $(8, 7), (8, -4)$

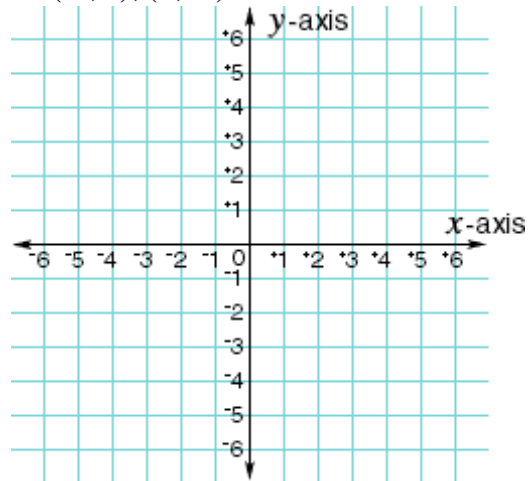
b.  $(3, 12), (17, 12)$

Example 3: Graph the following points. Then find the length and midpoint of the segments the points form.

a.  $(3, 6), (-2, -4)$



b.  $(-5, 5), (4, -3)$



Example 4: How can you tell whether a line segment is horizontal or vertical just by looking at the coordinates?

Example 5: From what theorem does the distance formula come? How could you explain this to someone else?